



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

After the piece has become cold the superfluous niello is removed, and the encrustation retained in the cavities is polished with the exposed outlines of metal level with the original surface. The metal plates enriched by this mode of decoration are also called nielli.

The niello work of the Middle Ages was the direct cause of the invention of the art of engraving on copper; the goldsmiths themselves made prints of the engraved, but not yet nielloed, plates in order to be able to correct the engraving afterwards.

## VARIOUS.

### Artificial Glue.

A glue which can be well utilised for paper-making or finishing of textile fabrics has been lately introduced in Germany. The starch possesses the property of swelling considerably if it is treated with a hot solution of caustic salts, and a gluey mass is obtained which is moderately transparent and elastic, but insoluble in cold and slightly soluble in hot water. This process, which has been known some years, had to be abandoned. According to the *Papier-Zeitung*, Herr A. Abadie prepares by means of alkaline or neutral chloride, like chloride of calcium, an artificial glue which is thick and more or less hard and easily dissolved in water. He can also obtain a hard mass, which is elastic, transparent, and insoluble in hot water. In this process magnesium chloride is used, to which a certain quantity of boiling water is added; the solution is left alone for some time, the liquor is drawn off, and a small quantity of sulphuric acid is added. It is necessary to use pure water for the operation. To the solution thus prepared starch is added, and the whole brought to the boiling point, and kept for one hour at 90 deg. C. To the now clear liquor clear lime-water is added till all the acid is neutralised; the boiling is repeated, and a good artificial glue is obtained. After it has been left to cool, it can be removed in the solid state. For treatment of 100 lb. starch, 100 lb. magnesium chloride, 1 lb. muriatic acid, are taken along with the necessary quantity of water for the complete solution. *The Furniture Gazette.*

### The Protection of Woodwork.

It not unfrequently happens, when a frame structure is hastily erected, and in our country they are always hastily erected, especially bridges, that a good oil paint is properly applied, and yet in a comparatively short time it begins to peel off more or less completely, making it necessary to repaint them. What is still more unfortunate, some timber, which has had a good coat of oil or tar paint that did not peel off, begins to decay in a short time, so that the original intention of the paint is not fulfilled, but, on the contrary, the paint itself seems to hasten its destruction.

These and similar circumstances lead people to distrust paint as a wood protector, and from different quarters we hear the assertion that unpainted wood will last longer than it would if painted.

This view, says Engineer Sauerwein, requires modification. In judging this matter we must ask how long was it from the time the wood was felled until it was painted, and was it dry or not, for these unfortunate cases have only occurred in wood which were painted too soon.

It is well known that the sap of wood contains substances like albumen, gelatine, gum, etc., which easily undergo decomposition, and under certain circumstances, such as favor fermentation, and in warm damp air, are able to destroy very rapidly the stronger woody fibers. The more sap there is in the wood, that is to say the greener it is, and the sooner the evaporation of this sap is stopped by an airtight cover, the quicker the fermentation will set in, and with it the destruction of the woody fiber.

These circumstances are correctly understood by practical men, who prescribe that the timber be felled in winter, and try to obtain a free circulation of air through the structure.

They think they avoid the disadvantages above mentioned if they, further, demand "seasoned wood", because it is clear that there is less danger of decomposition in such wood than in fresh or green stuff. But here we at once stumble on this difficulty, namely, of determining what degree of dryness in the wood to be tested seems most advantageous for its use, and the time required for this is much longer than generally supposed. The appearance of the wood is very seldom a reliable guide, and people are accustomed to think that the wood is much drier than it really is. The comparatively important changes which the wood undergoes during the first year from shrinkage enable us to measure approximately the time necessary to destroy the last evil effects of its interior life. Not until it has reached this stage, which requires four to six years, unless artificial seasoning is resorted to, is the timber benefited by covering it with a protecting coat of paint. At this time the paint must have a beneficial effect in protecting the wood, for it prevents atmospheric moisture penetrating into the wood to serve as a reagent to decompose the albumen, which is now dried and coagulated as well as less abundant.

Owing to the position of the lumber yards and the urgency for materials to build with it is seldom possible to obtain well seasoned lumber and wood. Sauerwein, therefore, proposes the following process:

The most rational and sensible process for large, heavy timbers is the impregnation, as for railroad ties, with chloride of zinc under six to eight atmospheres of pressure, where this can be done. (Fresh green wood is best for this.) No arguments are necessary in defense of the value of this method; it cannot be too strongly recommended, nor is the expense great—about \$ 1 per cubic meter. When there is no opportunity for impregnation the woodwork should be left two or four years unpainted.

In my experience, says Sauerwein, wood tar is better than coal tar, because it penetrates into the wood more easily, and, containing a larger amount of antiseptic substances, its effect is more permanent. Although wood tar is considerably dearer it is to be preferred. Its color being somewhat similar to wood color it can be used on small unimportant buildings. Its cost is only one-fourth that of oil paint and can be applied by a common workman.

Planed and worked surfaces should be merely oiled (three times) not painted. Besides having a better appearance, this oil varnish is necessary to prevent cracking and drawing of thin parts like doors and windows. It does not interfere with the gradual drying out of the wood.

After the expiration of three to five years the oiling may be replaced by a protecting coat of paint to prevent water from penetrating into the wood work. It should be added that it seems advantageous to mix about one part of elutriated chalk with three parts of the white lead which is used with the special color for all oil paints. This seems to make the paint adhere better to the wood, as shown by experience.

Without going into the subject of oil paints the author cautions the public against the many new fangled and highly extolled paints and substitutes. They are generally much dearer, he says, and at best are only equal to ordinary linseed oil paint made with equal care from well selected pure material. The chief effect of a good oil paint depends on the purity of the materials used, especially of the oil and white lead or zinc white, whether it is finely ground and thoroughly mixed, and the paint carefully applied in good weather. *Scientific American.*

